## Ecoregions of Louisiana

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Bryce and others, 1999). Ecoregions are general purpose regions that are critical for structuring and implementing

ecosystem management strategies across federal agencies, state agencies, and nongovernmen organizations responsible for different types of resources in the same geographical areas (Omernik and others, 2000). A Roman numeral hierarchical scheme has been adopted for different levels of ecological regions. Level I is the coarsest level, dividing North America into 15 ecological regions. Level II divides the continent into 52 regions (Commission for Environmental Cooperation Working Group, 1997). At level III, the continental United States contains 104 ecoregions and the conterminous United States has 84 ecoregions (U.S. Environmental Protection Agency [USEPA], 2006). Level IV is a further subdivision of level III ecoregions. Explanations of the methods used to define the USEPA's ecoregions are given in Omernik (1995, 2004), Omernik and others (2000), and Gallant and others (1989).

The approach used to compile the ecoregion map of Louisiana is based on the premise that ecological regions can be identified through the analysis of the spatial patterns and the composition of biotic and abiotic characteristics that affect or reflect differences in ecosystem quality and integrity (Wiken, 1986; Omernik, 1987, 1995). These characteristics include geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another regardless of ecoregion hierarchical level.

Louisiana contains barrier islands and coastal lowlands, large river floodplains, rolling and hilly coastal plains with evergreen and deciduous forests, and a variety of aquatic habitats. There are 6 level III ecoregions and 28 level IV ecoregions, and most of these continue into ecologically similar parts of adjacent states (Chapman and others, 2004; Griffith and others, 2004; Woods and The ecoregion map on this poster was compiled at a scale of 1:250,000, and depicts revisions and

subdivisions of earlier level III ecoregions that were originally compiled at a smaller scale (U.S.

primarily between USEPA-National Health and Environmental Effects Research Laboratory (Corvallis, Oregon), U.S. Geological Survey (USGS), U.S. Department of Agriculture–Natural Resources Conservation Service (NRCS), Louisiana Natural Heritage Program (LNHP) within the Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Geological Survey (LGS), and Louisiana Department of Environmental Quality (LDEQ). Collaboration and consultation also Griffith, G.E., Bryce, S.A., Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B., Greenwade, J., occurred with the Louisiana Department of Agriculture and Forestry (LDAF), Louisiana Department of Natural Resources, U.S. Department of Agriculture–Forest Service (USFS), U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), and USGS-Center for Earth Resources Observation and Science. This project is associated with an interagency effort to develop a common framework of ecological regions (McMahon and others, 2001). Reaching methodologies applied to develop the most common ecoregion-type frameworks, including those developed by the USFS (Bailey and others, 1994), the USEPA (Omernik 1987, 1995), and the U.S. Department of Agriculture–Soil Conservation Service (1981). As each of these frameworks is further refined, their differences are becoming less discernible. Each collaborative ecoregion project, such as this one in Louisiana, is a step toward attaining consensus and consistency in ecoregion frameworks for the entire nation.

Bailey, R.G., Avers, P.E., King, T., and McNab, W.H., editors, 1994, Ecoregions and subregions of the United States (map): Washington, D.C., U.S. Department of Agriculture-Forest Service, map scale

U.S. Department of Agriculture-Soil Conservation Service, 1981, Land resource regions and major land

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Environmental Protection Agency, 2006; Omernik, 1987). It is part of a collaborative project Commission for Environmental Cooperation Working Group, 1997, Ecological regions of North America – toward a common perspective: Montreal, Commission for Environmental Cooperation, 71 p. Gallant, A.L., Whittier, T.R., Larsen, D.P., Omernik, J.M., and Hughes, R.M., 1989, Regionalization as a tool for managing environmental resources: Corvallis, Oregon, U.S. Environmental Protection Agency, EPA/600/3-89/060, 152 p.

Casby-Horton, S., Hatch, S.L., and Bezanson, D., 2004, Ecoregions of Texas (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey, map scale 1:2,500,000. McMahon, G., Gregonis, S.M., Waltman, S.W., Omernik, J.M., Thorson, T.D., Freeouf, J.A., Rorick, A.H., and Keys, J.E., 2001, Developing a spatial framework of common ecological regions for the conterminous United States: Environmental Management, v. 28, no. 3, p. 293-316. that objective requires recognition of the differences in the conceptual approaches and mapping

Omernik, J.M., 1987, Ecoregions of the conterminous United States (map supplement): Annals of the Association of American Geographers, v. 77, p. 118-125, map scale 1:7,500,000.

> Omernik, J.M., 1995, Ecoregions – a framework for environmental management, in Davis, W.S., and Simon, T.P., editors, Biological assessment and criteria – tools for water resource planning and decision making: Boca Raton, Florida, Lewis Publishers, p. 49-62. Omernik, J.M., 2004, Perspectives on the nature and definition of ecological regions: Environmental Management, v. 34, Supplement 1, p. s27-s38.

Omernik, J.M., Chapman, S.S., Lillie, R.A., and Dumke, R.T., 2000, Ecoregions of Wisconsin: Transactions of the Wisconsin Academy of Sciences, Arts, and Letters, v. 88, p. 77-103. resource areas of the United States: Agriculture Handbook 296, 156 p. + map. Bryce, S.A., Omernik, J.M., and Larsen, D.P., 1999, Ecoregions – a geographic framework to guide risk

U.S. Environmental Protection Agency, 2006, Level III ecoregions of the continental United States (revision of Omernik, 1987): Corvallis, Oregon, USEPA-National Health and Environmental Effects Research Laboratory, Map M-1, various scales.

> Wiken, E., 1986, Terrestrial ecozones of Canada: Ottawa, Environment Canada, Ecological Land Classification Series no. 19, 26 p. Woods, A.J., Foti, T.L., Chapman, S.S., Omernik, J.M., Wise, J.A., Murray, E.O., Prior, W.L., Pagan, J.B., Jr., Comstock, J.A., and Radford, M., 2004, Ecoregions of Arkansas (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey, map scale

> > 34 Western Gulf Coastal Plain

34g Texas-Louisiana Coastal Marshes

34c Floodplains and Low Terraces

34j Lafayette Loess Plains

35a Tertiary Uplands

35f Flatwoods

**35 South Central Plains** 

35b Floodplains and Low Terraces

35c Pleistocene Fluvial Terraces

35e Southern Tertiary Uplands

**65 Southeastern Plains** 

65f Southern Pine Plains and Hills

73 Mississippi Alluvial Plain 73a Northern Holocene Meander Belts

73i Arkansas/Ouachita River Backswamps

730 Deltaic Coastal Marshes and Barrier Islands

73k Southern Holocene Meander Belts

731 Southern Pleistocene Valley Trains

74 Mississippi Valley Loess Plains

65p Southeastern Floodplains and Low Terraces

73h Arkansas/Ouachita River Holocene Meander Belts

35g Red River Bottomlands

73d Northern Backswamps

73m Southern Backswamps

74c Southern Rolling Plains

**75 Southern Coastal Plain** 

75i Floodplains and Low Terraces

75k Gulf Barrier Islands and Coastal Marshes

74d Baton Rouge Terrace

75a Gulf Coast Flatwoods

73i Macon Ridge

73n Inland Swamps

74a Bluff Hills

34a Northern Humid Gulf Coastal Prairies



more irregular, and have mostly forest vegetation in the Louisiana portion (Ecoregion 35) or savanna-type vegetation potentials to the west in Texas (Ecoregion 33). Largely because of this flat land and relatively fertile soils, a higher percentage of the land is in cropland than in bordering ecological regions. Rice and soybeans are the principal crops across the region, while grain sorghum and cotton are also grown mostly in the Texas portion. Urban and industrial land uses have expanded greatly in recent decades in some parts of the region, and oil and gas production is common. Quaternary-age deltaic sands, silts, clays, and gravel underlie much of the Northern Humid Gulf Coastal Prairies on this gently sloping coastal plain. The original vegetation was mostly tallgrass grasslands with gallery forests along streams. Little bluestem, big bluestem, lakes, bayous, tidal channels, and canals. The streams and rivers that supply nutrients and sediments yellow Indiangrass, brownseed paspalum, and switchgrass were dominant grasses, in a mixture with to this region are primarily from the humid pine belt of Ecoregion 35. Soils are very poorly drained hundreds of other herbaceous species across these prairies. Almost all of the coastal prairies have

Histosols and Entisols with muck or clay surface textures. The region, called the Chenier Plain in been converted to cropland, pasture, crawfish aquaculture, or urban land uses. Some loblolly pines, Louisiana, is almost treeless. The cheniers, or narrow ridges paralleling the shoreline, rise to about wetlands support a sport hunting industry, a with silt loam or silty clay loam texture, while some Vertisols and Mollisols also occur. Pimple cactus. Extensive cordgrass marshes occur in the more saline areas with maidencane and sawgrass mounds of loamy sand were prevalent across the prairie terrace, providing micro-habitat variation. Covering the Holocene alluvial floodplain deposits of the larger and wider streams or bayous, the Floodplains and Low Terraces ecoregion is distinct from the surrounding prairie uplands of Ecoregion 34a. The region in Louisiana has some similarities to the floodplain terraces have a different bottomland forest than the floodplains of Ecoregion 35. Bottomland forests Lacassine Bayou and tributary streams. Large portions of forest have been removed. Current land switchgrass, and other herbaceous species has been replaced by crops of rice, soybeans, cotton, cover is a mix of wetland deciduous forest, upland mixed and deciduous forest, along with some sugarcane, sweet potatoes, and wheat, along with crawfish aquaculture. Urban expansion in the area Louisiana's coastal wetlands provide winter cropland and pasture. Soils in the Louisiana portion are mostly very poorly and poorly drained Alfisols has been substantial. There is more pasture compared to the large extent of small grains production habitat for 50% of the Mississippi flyway and Entisols with silt loam or very fine sandy loam surface textures.

34. Western Gulf Coastal Plain

35. South Central Plains

and historically "islands" of longleaf pine, occur in the northern part of the region in the transition to five feet in elevation but occupy only about three percent of the region. Live oaks and hackberries Ecoregion 35. Soils in the Louisiana portion are mostly poorly or somewhat poorly drained Alfisols are dominant canopy species on many of the ridges, with an understory of palmetto and prickly pear on fresh marshes. The estuaries and marshes support abundant marine life, supply wintering grounds for globally significant populations of ducks and geese, and provide habitat for small mammals and alligators. Brown shrimp and white shrimp are commercially important. Sport fishery species such as red drum, black drum, southern flounder, and spotted seatrout occur in the coastal bays. forests of Ecoregion 35b to the north. In most of Ecoregion 34c, however, the floodplains and low

The Lafayette Loess Plains had coastal prairie natural vegetation similar to Ecoregion 34a, but are capped with a loess veneer associated with the Mississippi Valley. Well to poorly f pecan, water oak, live oak, and elm are typical, with some bald cypress on larger streams. In drained Alfisols and Mollisols with silt loam surface textures developed on the late Pleistocene-age Louisiana, the region includes the Mermentau River and its larger tributaries, as well as parts of terraces. The historical vegetation dominated by big bluestem, little bluestem, yellow Indiangrass,

in Ecoregion 34a to the west. Narrow hardwood forests occur along some streams and lowlands.

Soils are poorly to moderately well drained Alfisols and Ultisols with mostly silt loam

and tend to be less clayey than in 34a to the south. This ecoregion once was dominated by longleaf

extensive, occurring in narrow areas along some streams and mesic slopes. This region is warmer,

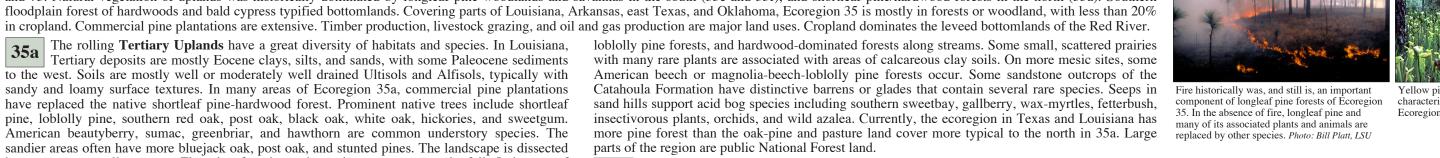




cropland, but small areas are being restored. Photo:

Deanna Parker, Cajun Prairie Preservation Society





55. In the absence of fire, longleaf pine and Ecoregion 35. *Photo: LNHP* 



uisiana pine snake is considered one of the The red-cockaded woodpecker, an endangered rarest snakes in North America. Its historical species, lives in old-growth pine forests, mainly wetter, flatter, less dissected, and lower in elevation than ecoregions 35a and 35e. Streams are low sandy uplands of Ecoregion 35 in west-central States. In 2000, there were about 12,500 birds Louisiana and eastern Texas. They depend on throughout their range. *Photo: E.B. Smith, USFS* 



Longleaf pine in grass stage in Ecoregion 35e. The Red River Bottomlands ecoregion (35g) has cropland and pasture with only minor areas of





🜃 65. Southeastern Plains

pine woodlands, with smaller areas of oak-pine and mixed hardwood forest. Uplands are underlain by poorly consolidated Pleistocene and Pliocene deposits, and soils are mostly acidic sandy loams, silt loams, and sandy clay loams. Although Pleistocene-age loess deposits do influence soil characteristics in the Louisiana part of the ecoregion, mainly in the western half, the region received substantially less loess deposition than Ecoregion 74 to the west. Elevations and relief are greater than in the Southern Coastal Plain (75) and Mississippi Alluvial Plain (73). Streams are low- to moderate-gradient with mostly sandy substrates. Commercial pine plantations are extensive. Timber production and dairy and beef cattle farming are major land uses, with urban and residential development increasing. The Southern Pine Plains and Hills ecoregion extends across southern Mississippi and region are composed mostly of Pliocene or early Pleistocene-age deposits that are generally sandy Alabama and a portion of eastern Louisiana, covering what was once part of the longleaf gravelly, and porous. Soils are mostly well to moderately well drained Ultisols and Alfisols with pine belt. This area in Louisiana was historically rolling longleaf pine woodlands, broken by creek fine sandy loam or silt loam surface texture. Some cattle, horse, and hay ranches occur, as well as and river bottoms with mixed loblolly pine-hardwood forests. Today, almost all of the longleaf pine some poultry and dairy production. forests are gone, replaced mostly by mixed forests of recent incidental origin and slash and loblolly pine plantations. The longleaf pine forest provided habitat for now rare or endangered species such forests are gone, replaced mostly by mixed forests of recent incidental origin and slash and loblolly

The principal distinguishing characteristics of the Western Gulf Coastal Plain are its relatively flat topography and mainly grassland potential natural vegetation. Inland from this region, the plains are older,

region 35 is composed of rolling plains that are broken by nearly flat fluvial terraces, bottomlands, sandy low hills, and low cuestas. Its terrain is unlike the flatter, less dissected Mississippi Alluvial

Tertiary deposits are mostly Eocene clays, silts, and sands, with some Paleocene sediments with many rare plants are associated with areas of calcareous clay soils. On more mesic sites, some

Plain (73) or the Western Gulf Coastal Plain (34). Uplands are underlain mainly by poorly-consolidated Tertiary coastal plain deposits, and soils are mostly acidic sandy loams, salt loams, sands, and sandy

and 73. Natural vegetation of uplands was historically dominated by longleaf pine woodlands and savannas in the south (35e and 35f), and shortleaf pine/hardwood forests in the north (35a). Southern floodplain forest of hardwoods and bald cypress typified bottomlands. Covering parts of Louisiana, Arkansas, east Texas, and Oklahoma, Ecoregion 35 is mostly in forests or woodland, with less than 20%

to the west. Soils are mostly well or moderately well drained Ultisols and Alfisols, typically with American beech or magnolia-beech-loblolly pine forests occur. Some sandstone outcrops of the

Louisiana's drier regions, with 51 to 55 inches annual precipitation in the northwest portion. Many state and globally rare plant and animal species are found in this region. Timber at 1 inches and 1

state and globally rare plant and animal species are found in this region. Timber production is the textures. They are generally more poorly drained than many areas of Ecoregion 35e to the north,

of Ecoregion 35b are frequently flooded, and forested wetlands are characteristic. There is a distinct species, with the structure and composition varying from the more open forests of the wet savannas

vegetation change from adjacent upland ecoregions into bottomland hardwood forest, with to the more closed forests of the dry flatwoods. Flatwood landscapes are characterized by pimple

The Floodplains and Low Terraces ecoregion is nearly level, veneered by Holocene pine flatwoods and savannas, but also supported other mixed pine-hardwood forest types. The alluvium, and contains natural levees, swales, oxbow lakes, and meander scars. Many parts longleaf pine community was characterized by longleaf pine over a great diversity of herbaceous

sandier areas often have more bluejack oak, post oak, and stunted pines. The landscape is dissected parts of the region are public National Forest land.

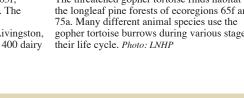
in cropland. Commercial pine plantations are extensive. Timber production, livestock grazing, and oil and gas production are major land uses. Cropland dominates the leveed bottomlands of the Red River.

ay loams. Bottomlands and terraces are veneered with Quaternary alluvium, terrace deposits, or loess. The lithologic mosaic is complex and distinct from the strictly Quaternary deposits of Ecoregions 34

The Bogue Chitto begins near Brookhaven, Mississippi, meanders southward and flows into the West Pearl River Canal th of Bogalusa. It is the largest western tributary to the Pearl River system. The Bogue Chitto is valuable for its diversity, sports fishing, and aesthetic beauty. Increased siltation from gravel and sand mining, dairy farming, viculture, and road construction, and high levels of fecal coliform and mercury impair its water quality. Fish species

floodplains of Ecoregion 65, the Pearl and Bogue Chitto rivers.









largest port systems, and fisheries that supply more than a quarter of the seafood consumed in the lower 48 states, Photo: Anne Marino, USACE

Louisiana's coastal wetlands are an ecological, cultural, and economic treasure. Within Louisiana coastal wetlands, there exists more than half of the tidal marshes found in the lower 48 states, oil and gas pipelines that deliver more than a quarter of the nation's energy supplies, one of the world's

## 73. Mississippi Alluvial Plain

rsity and the abundance of benthic minnows and darters has declined over the past 30 years. *Photo: USFWS* 

This riverine ecoregion extends from southern Illinois, at the confluence of the Ohio River with the Mississippi River, south to the Gulf of Mexico. The Mississippi River watershed drains all or parts of thirty-one states, two Canadian provinces, and approximately 1,243,000 square miles before the river finally reaches the Gulf. The Mississippi Alluvial Plain is mostly a broad, flat alluvial plain with rive terraces, swales, and levees providing the main elements of relief. Soils are typically finer-textured and more poorly drained than the upland soils of adjacent Ecoregions 35 and 74, although there are some areas of coarser, better-drained soils. Winters are mild and summers are hot, with temperatures and precipitation increasing from north to south. Bottomland deciduous forest covered the region before much of it was cleared for cultivation. The ecoregion contained one of the largest continuous wetland systems in North America. The widespread loss of forest and wetland habitat, however, has impacted wildlife and reduced bird populations, although it is still a major bird migration corridor. Today, constructed levees restrict the river from overflowing, opening large areas for extensive agricultural use. Almost all of the region is in cropland, and it receives large inputs of pesticides. In Louisiana, cotton, corn, soybeans, pasture, and rice are major crops in the northern and central parts and sugarcane, soybeans, and pasture are dominant in the southern part. Between the levees that parallel the Mississippi River is a corridor known as the "batture lands." The batture lands are hydrologically connected to the Mississippi River, are flood-prone, and contain remnant habitat for "big river" species (e.g., pallid sturgeon) as well as river-front plant communities. They are too narrow to map as a separate level IV ecoregion.

The Northern Holocene Meander Belts ecoregion is a flat to nearly flat floodplain 20 to 30 feet above the adjacent ecoregions 73a and 73d on the east side. On the western side, containing the meander belts of the present and past courses of the Mississippi River. Point elevations of Macon Ridge are nearly the same as in the lithologically and physiographically bars, natural levees, swales, and abandoned channels marked by meander scars and oxbow lakes are distinct Arkansas/Ouachita River Holocene Meander Belts (73h). Native forest types range from common. Its abandoned channel network is more extensive than in the Southern Holocene Meander those of better drained bottomlands dominated by willow oak, water oak, and swamp chestnut oak Belts (73k). The natural levees were the most conspicuous landform of the meander belt, and their to upland hardwood forests dominated by white oak, southern red oak, and on drier sites, post oak. distribution influenced human settlements, transportation routes, and agricultural and industrial Prairies and loblolly pine-dominated areas may also have occurred. Today, Ecoregion 73i is a activities in northeast Louisiana. Ecoregion 73a is underlain by Holocene alluvium; it lacks the mosaic of cropland and pasture, with some woodland and forest. Cotton, corn, soybeans, and wheat Pleistocene glacial outwash deposits of Ecoregion 73j. Soils are mostly Vertisols, Inceptisols, and are the major crops, and aquaculture is important in some areas. Alfisols with silt loam, silty clay loam, and clay textures. On natural levees, soils are more coarse-textured, better drained, and higher than those on levee back slopes and point bars. They grade to

The Southern Holocene Meander Belts ecoregion stretches from just north of Natchez, Mississippi south to New Orleans. Louisiana, Similar to the Northern Holocene Meander poorly-drained clays in abandoned channels and swales. Natural vegetation varies with site Belts (73a), point bars, oxbows, natural levees, and abandoned channels occur. This region, characteristics, mainly soil texture and hydroperiod. Coarser soils have fewer oaks and more however, has a longer growing season, warmer annual temperatures, some hyperthermic soils, and sugarberry, elm, ash, pecan, cottonwood, and sycamore than Ecoregion 73d. Widespread draining more precipitation than its northern counterparts of 73a and 73h. Soils are somewhat poorly and wetlands and removal of bottomland forests occurred with cropland expansion. Bottomland hardwood forest restoration programs have reversed this trend since 1985. Cotton, corn, soybeans, and pasture are the main crops, and some catfish production and other aquaculture occur. The Northern Backswamps ecoregion is made up of low-lying overflow areas on agriculture, flood control, and navigation. The levee system is extensive throughout the region. floodplains, and includes poorly-drained flats and swales. Water often collects in its Soybeans, sugarcane, cotton, corn, and pasture are the major crops, with crawfish aquaculture common. swamps, lakes, and low gradient streams. These were areas generally not affected by lateral riverchannel migrations. Soils are mostly gray to black Vertisols, developed from clayey alluvium of

locally rich in organic material. Water levels are seasonally variable. Native vegetation in wettest ecoregion, however, has warmer annual temperatures, a longer growing season, and higher annual areas is generally dominated by bald cypress-water tupelo forest; slightly higher and better drained rainfall. Soils are somewhat poorly drained Alfisols, Inceptisols, and Vertisols with sites have overcup oak—water hickory forest; and highest, best-drained areas support willow oak or loamy and clayey surfaces. Some species occur here that are not present in the Macon Ridge (73j) Nuttall oak forest. Today, bottomland forest, cropland, farmed wetlands, and pasture occur. or Western Lowlands Pleistocene Valley Trains (73g) ecoregions to the north in Arkansas. Overcup Backswamps are important areas for capturing excess nutrients from local waters and for storing oak, Nuttall oak, honey locust, elm, water oak, sweetgum, blackgum, and hickory are the most The Arkansas/Ouachita River Holocene Meander Belts ecoregion is a flat to nearly flat (73m) ecoregion and soils are more sandy and better drained than the heavy clay soils of the Yellow-throated vireo and other migratory floodplain containing the meander belts of the present and past courses of the lower backswamps. Cropland and pasture is common with corn, soybeans, and cotton as major crops. Arkansas and Ouachita rivers. Point bars, natural levees, swales, and abandoned channels marked by meander scars and oxbow lakes are common and characteristic. Soils on natural levees are more coarse-textured, well-drained, and higher than those on levee back slopes and point bars. Soils grade Bald cypress and tupelo are native in the wettest areas of the Northern and Southern Backswamps to poorly-drained clays in abandoned channels and swales. Overall, soils have less organic matter occurs frequently. Bottomland hardwood forests are more prevalent in this region than in the than in the Northern Holocene Meander Belts (73a). Bayou Bartholomew inhabits the longest adjacent Southern Holocene Meander Belts (73k), where cropland is common. Channelization and section of abandoned channels. It flows against the edge of the South Central Plains (35), receives flood control systems have modified this region and impacted many of the wetland habitats. drainage from it, and has sufficient habitat diversity to be one of the most species-rich streams in North America. Bayou Bartholomew supports over half of all known mussel species found in Louisiana. Within an abandoned course, bald cypress and/or water tupelo typically grow in the modern stream channel adjacent to a strip of wet bottomland hardwood forest dominated by overcup oak and water hickory. The remainder of the native forest has largely been cleared and drained for cropland and pastureland. Corn, cotton, and soybeans are the main crops. The flats, swales, and natural levees of the Arkansas/Ouachita River Backswamps more prolonged, the vegetative community is dominated by grasses, sedges, and rushes. This region ecoregion include the slackwater areas along the Arkansas and Ouachita rivers, where water contains one of the largest bottomland hardwood forest swamps in North America. Deposits include into swamps, oxbow lakes, ponds, and sloughs. In contrast to the Northern

generally intolerant of brackish water except for short periods. In areas where freshwater flooding is organic clays and peats up to 20 feet thick, and inter-bedded fresh- and brackish-water carbonaceou Backswamps (73d), this region is widely veneered with natural levee deposits. Soils derived from clays. The levees in place on either side of the Mississippi River have diverted much of the river these deposits are Alfisols, Vertisols, and Inceptisols that are generally more loamy and better flow from its natural tendency to flow into the Atchafalaya Basin. Large concrete structures prevent drained than the clayey soils of the Northern Backswamps (73d). As a result, willow oak and water diversion into the Atchafalaya River, and flow from the Red River is also controlled. While this oak are native instead of other species adapted to wetter overflow conditions. Drainage canals and helps control flooding, it has also modified the region and contributed to the loss of wetland habitat. ditches are common. This artificial drainage and the sandy veneer of natural levee deposits help Brackish and saline marshes dominate the **Deltaic Coastal Marshes and Barrier Islands** explain why Ecoregion 73i is more easily and widely farmed than the Northern Backswamps (73d). ecoregion. The region supports vegetation tolerant of brackish or saline water including Soybeans, corn, cotton, and rice are important crops but forests and forested wetlands also occur. saltmarsh cordgrass, marshhay cordgrass, black needlerush, and coastal saltgrass. Black mangrove The prominent Macon Ridge is underlain almost entirely by Pleistocene glacial outwash occurs in a few areas, and some live oak is found on Grand Isle and along old natural levees. that was transported to Arkansas and Louisiana by the Mississippi River and deposited by

Extensive organic deposits lie mainly below sea level in permanently flooded settings resulting in aided streams. It was subsequently veneered with loess, thicker on the eastern side. Its loessial the development of mucky surfaced Histosols. Sediments of silts, clays, and peats contain large Alfisols, with silt or silt loam textures, contrast with the alluvial soils of the Northern Holocene amounts of methane, oil, and hydrogen sulfide gas. Inorganic sediments found within the ecoregion Meander Belts (73a) and Arkansas/Ouachita River Holocene Meander Belts (73h). Ecoregion 73j is are soft and have high water contents. They will shrink dramatically upon draining. The wetlands higher in elevation, better drained, and supports drier plant communities than adjacent ecoregions and marshes act as a buffer to help moderate flooding and tidal inundation during storm events. 73a, 73d, 73h, and 73i. The eastern edge of Macon Ridge is higher than its western side, averaging Lack of sediment input, delta erosion, land subsidence, and rising sea levels threaten the region.

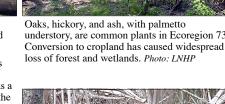


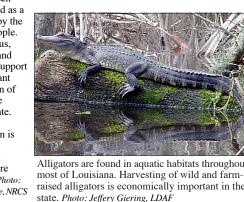
rcane is the major crop in the southern reaches of Ecoregion 73k. *Photo: David Nance*, part of Ecoregion 73. Although eradication





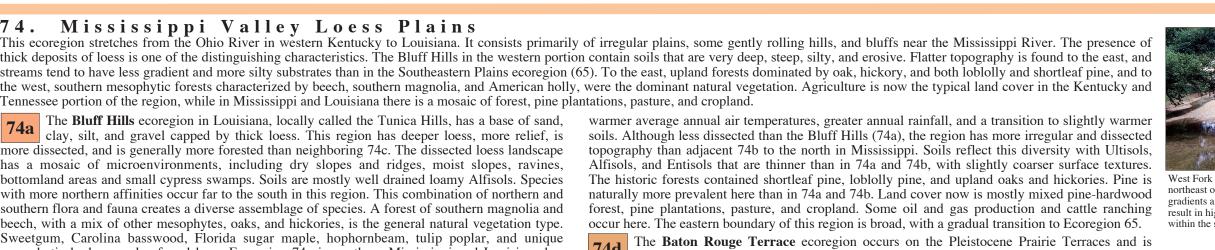














miles, growth, traffic congestion





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pography into microenvironments including dry slopes and ridges, moist slopes, ravines, and

bottomlands. Beech-magnolia forest dominates the area. Photo: LNHP

streams tend to have less gradient and more silty substrates than in the Southeastern Plains ecoregion (65). To the east, upland forests dominated by oak, hickory, and both loblolly and shortleaf pine, and to he west, southern mesophytic forests characterized by beech, southern magnolia, and American holly, were the dominant natural vegetation. Agriculture is now the typical land cover in the Kentucky and Tennessee portion of the region, while in Mississippi and Louisiana there is a mosaic of forest, pine plantations, pasture, and cropland. The Bluff Hills ecoregion in Louisiana, locally called the Tunica Hills, has a base of sand, warmer average annual air temperatures, greater annual rainfall, and a transition to slightly warmer clay, silt, and gravel capped by thick loess. This region has deeper loess, more relief, is soils. Although less dissected than the Bluff Hills (74a), the region has more irregular and dissected more dissected, and is generally more forested than neighboring 74c. The dissected loess landscape topography than adjacent 74b to the north in Mississippi. Soils reflect this diversity with Ultisols, has a mosaic of microenvironments, including dry slopes and ridges, moist slopes, ravines, Alfisols, and Entisols that are thinner than in 74a and 74b, with slightly coarser surface textures. bottomland areas and small cypress swamps. Soils are mostly well drained loamy Alfisols. Species The historic forests contained shortleaf pine, loblolly pine, and upland oaks and hickories. Pine is West Fork Thompson Creek in Ecoregion 74c with more northern affinities occur far to the south in this region. This combination of northern and naturally more prevalent here than in 74a and 74b. Land cover now is mostly mixed pine-hardwood northern and naturally more prevalent here than in 74a and 74b. Land cover now is mostly mixed pine-hardwood northern and naturally more prevalent here than in 74a and 74b. southern flora and fauna creates a diverse assemblage of species. A forest of southern magnolia and forest, pine plantations, pasture, and cropland. Some oil and gas production and cattle ranching

74. Mississippi Valley Loess Plains

beech, with a mix of other mesophytes, oaks, and hickories, is the general natural vegetation type. occur here. The eastern boundary of this region is broad, with a gradual transition to Ecoregion 65. within the stream channel. Photo: LDEQ Sweetgum, Carolina basswood, Florida sugar maple, hophornbeam, tulip poplar, and unique mesophytic herbs are also found here. Ecoregion 74a in southern Mississippi and Louisiana has more southern magnolia, water oak, and Spanish moss than in the north. The cool ravines contain other parts of Ecoregion 74, loess is thicker to the west. The soils are mostly Alfisols with brown or some higher gradient streams and areas of gravel substrate, creating distinct aquatic habitats. Severe grayish-brown, silt loam surfaces that developed in the loess parent materials. High sodium soils are erosion has occurred in many parts of 74a, particularly when the soils lack adequate vegetative common. The natural vegetation was influenced by the unusual soil conditions and by different ver. Louisiana black bear, Webster's salamander, and eastern chipmunk occur in this region. forest types occurring in adjacent regions, with some upland hardwoods to the northwest, hardwood The Southern Rolling Plains occur on younger, Miocene- and Pliocene-age geologic flatwoods and spruce pine-hardwood mixed forests across extensive broad flats, and many areas of formations (almost all Pliocene in Lousiana) compared to the Loess Plains (74b) to the north bottomland hardwoods. Large areas of the mixed pine-hardwood forest have now been cleared for in Mississippi and Tennessee, and it has a warmer climate. The climatic shift from 74b includes pasture, cropland, and urban uses. Urban uses cover about fifty percent of the region.

cleared for pasture or crops. Dominant land uses include woodland, wildlife habitat, and urban.

75. Southern Coastal Plain

Louisiana. Consisting mostly of flat plains, it also includes barrier islands, coastal lagoons, marshes, and swampy lowlands along the Gulf and Atlantic coasts. In Florida, an area of discontinuous highlands contains numerous lakes. This ecoregion is lower in elevation with less relief and wetter soils than the Southeastern Plains (65). Once covered mainly by longleaf pine flatwoods and savannas, this ecoregion also had a variety of other forest communities that supported slash pine, pond cypress, beech, sweetgum, southern magnolia, white oak, and laurel oak. Land cover in the region is now mostly slash and loblolly pine, often mixed with various hardwoods, bottomland hardwood forest in some low-lying areas, citrus groves in Florida, pasture for beef cattle, and urban land. The Gulf Coast Flatwoods is a narrow region of nearly level terraces and alluvial and sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. Soils are mostly loan deltaic deposits composed of Quaternary-age sands and clays. Soils are a mix of poorly to

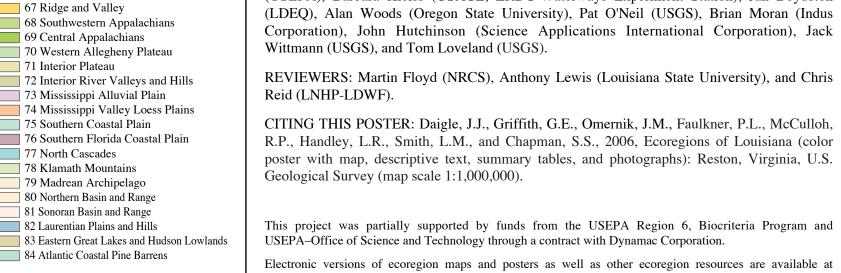
Entisols. River swamp forests of bald cypress and water tupelo and oak-dominated bottomla moderately well drained Entisols, Alfisols, and Ultisols with silty and fine sandy loam surfaces. hardwood forests provide important wildlife habitat. Historically, longleaf pine dominated the broad flats and low ridges, forming more densely-stocked The Gulf Barrier Islands and Coastal Marshes ecoregion extends west from the Florida flatwoods and open savannas. A high natural fire frequency was typical, often sparked by lightning and fueled by grasses, and maintained the open pine flatwoods and savannas. While most of the In Louisiana, the sediments of this region are associated more with the Pearl River than Mississippi

The Southern Coastal Plain extends from South Carolina and Georgia through much of central Florida, and along the Gulf coast lowlands of the Florida Panhandle, Alabama, Mississippi, and easter

Panhandle across the Alabama and Mississippi coasts to the Pearl River area of Louisiana. ongleaf pine savannas have been lost, remnant savannas are centers of biodiversity supporting a River deltaic deposits. The region east of Louisiana has salt and brackish marshes, dunes, beaches, variety of grasses, sedges, rushes, and an array of wildflowers: red lilies, orange milkweeds, yellow and barrier islands. In Louisiana, tidal freshwater marshes occur, such as those on the delta plains of pitcher plants, white, orange, and pink orchids, lavender butterworts, and purple sundews. Much of the larger rivers. Soils are very poorly drained Histosols and Entisols with mucky surfaces. The the landscape is now in mixed forest or pine plantations, while some better-drained land has been ecoregion provides habitat for many waterfowl, shorebird, sea turtle, and fish species, as well as for muskrat, nutria, raccoon, otter, mink, and alligator. Nearby coastal erosion of islands composed of **Floodplains and Low Terraces** are a continuation of the riverine 65p ecoregion across the deltaic deposits, land subsidence, and rising sea levels threaten the terrestrial habitats of the region. Southern Coastal Plain. The broad floodplains and terraces of the Pearl River are the only The Pearl River flows south from central Mississippi and empties into the Gulf of Mexico through Lake Borgne and portion of the region in Louisiana. Composed of stream alluvium and terrace deposits of sand, silt, Mississippi Sound. The Pearl is a winding, slow moving river with a large sand bar in almost every bend. Sycamore and willo trees line the banks along with stands of mixed hardwoods, pine, and gum. Photo: Carrie Robertson, www.gulfmex.org. Right: Indig clay, and gravel, along with some organic muck and swamp deposits, the region includes large

ounting and other migratory songbirds depend on the bottomland hardwood forests for resting and shelter. Photo: Charles L. Jo





REVIEWERS: Martin Floyd (NRCS), Anthony Lewis (Louisiana State University), and Chris CITING THIS POSTER: Daigle, J.J., Griffith, G.E., Omernik, J.M., Faulkner, P.L., McCulloh, R.P., Handley, L.R., Smith, L.M., and Chapman, S.S., 2006, Ecoregions of Louisiana (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).

Smith (The Nature Conservancy), and Shannen S. Chapman (Dynamac Corporation).

This project was partially supported by funds from the USEPA Region 6, Biocriteria Program and USEPA-Office of Science and Technology through a contract with Dynamac Corporation. Electronic versions of ecoregion maps and posters as well as other ecoregion resources are available at http://www.epa.gov/wed/pages/ecoregions.htm.





57 Huron/Erie Lake Plains

58 Northeastern Highlands

61 Erie Drift Plain

64 Northern Piedmont

65 Southeastern Plains

66 Blue Ridge

59 Northeastern Coastal Zone

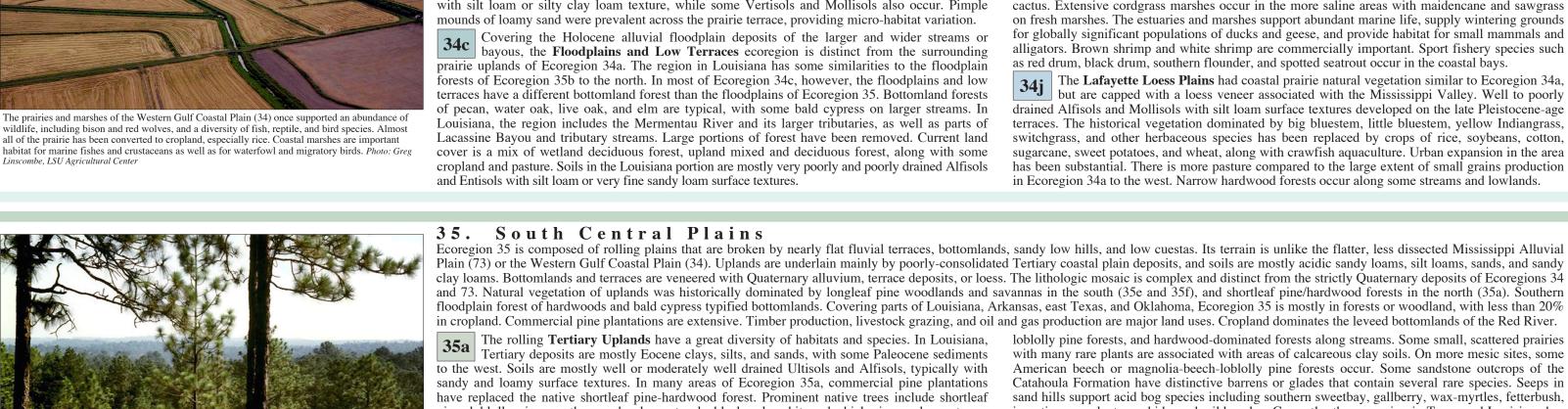
62 North Central Appalachians

63 Middle Atlantic Coastal Plain

60 Northern Appalachian Plateau and U

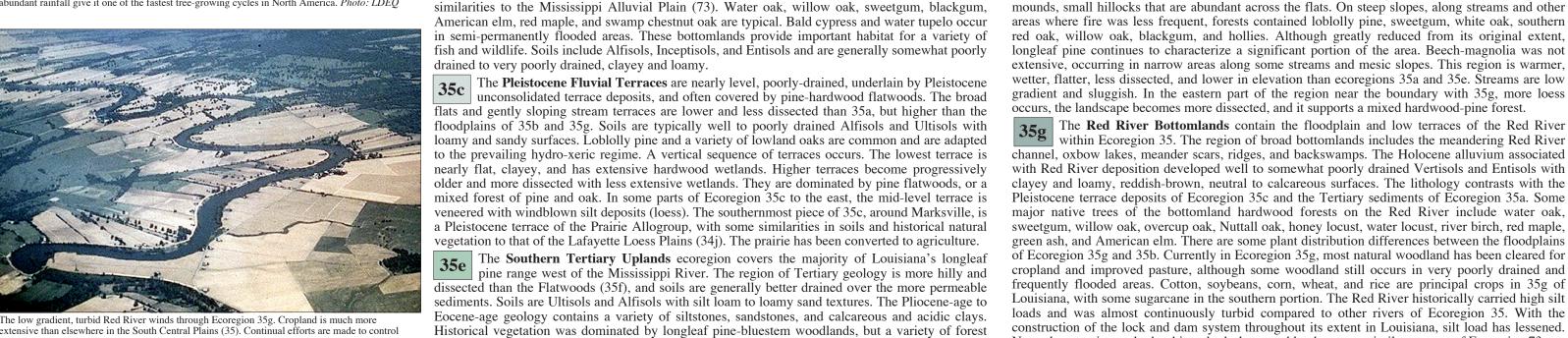


INTERIOR-GEOLOGICAL SURVEY, RESTON, VIRGINIA-2006



National Forest. About 13.8 million acres of softwood and hardwood forests cover Louisiana nearly half of the state. 62% of these forests are owned by private, non-industrial landowners, 29%

by forest products industries, and 9% are owned by the public. Louisiana's mild climate and abundant rainfall give it one of the fastest tree-growing cycles in North America. *Photo: LDEQ* 



American elm, red maple, and swamp chestnut oak are typical. Bald cypress and water tupelo occur areas where fire was less frequent, forests contained loblolly pine, sweetgum, white oak, southern semi-permanently flooded areas. These bottomlands provide important habitat for a variety of red oak, willow oak, blackgum, and hollies. Although greatly reduced from its original extent, fish and wildlife. Soils include Alfisols, Inceptisols, and Entisols and are generally somewhat poorly longleaf pine continues to characterize a significant portion of the area. Beech-magnolia was not

dominant land use, along with livestock grazing, poultry production, and oil and gas activities.

The **Pleistocene Fluvial Terraces** are nearly level, poorly-drained, underlain by Pleistocene unconsolidated terrace deposits, and often covered by pine-hardwood flatwoods. The broad gradient and sluggish. In the eastern part of the region near the boundary with 35g, more loess flats and gently sloping stream terraces are lower and less dissected than 35a, but higher than the occurs, the landscape becomes more dissected, and it supports a mixed hardwood-pine forest. floodplains of 35b and 35g. Soils are typically well to poorly drained Alfisols and Ultisols with loamy and sandy surfaces. Loblolly pine and a variety of lowland oaks are common and are adapted within Ecoregion 35. The region of broad bottomlands includes the meandering Red River to the prevailing hydro-xeric regime. A vertical sequence of terraces occurs. The lowest terrace is channel, oxbow lakes, meander scars, ridges, and backswamps. The Holocene alluvium associated nearly flat, clayey, and has extensive hardwood wetlands. Higher terraces become progressively with Red River deposition developed well to somewhat poorly drained Vertisols and Entisols with older and more dissected with less extensive wetlands. They are dominated by pine flatwoods, or a clayey and loamy, reddish-brown, neutral to calcareous surfaces. The lithology contrasts with the mixed forest of pine and oak. In some parts of Ecoregion 35c to the east, the mid-level terrace is Pleistocene terrace deposits of Ecoregion 35c and the Tertiary sediments of Ecoregion 35a. Some veneered with windblown silt deposits (loess). The southernmost piece of 35c, around Marksville, is major native trees of the bottomland hardwood forests on the Red River include water oak, a Pleistocene terrace of the Prairie Allogroup, with some similarities in soils and historical natural sweetgum, willow oak, overcup oak, Nuttall oak, honey locust, water locust, river birch, red maple, vegetation to that of the Lafayette Loess Plains (34j). The prairie has been converted to agriculture. green ash, and American elm. There are some plant distribution differences between the floodplains The Southern Tertiary Uplands ecoregion covers the majority of Louisiana's longleaf of Ecoregion 35g and 35b. Currently in Ecoregion 35g, most natural woodland has been cleared for pine range west of the Mississippi River. The region of Tertiary geology is more hilly and cropland and improved pasture, although some woodland still occurs in very poorly drained and issected than the Flatwoods (35f), and soils are generally better drained over the more permeable frequently flooded areas. Cotton, soybeans, corn, wheat, and rice are principal crops in 35g of sediments. Soils are Ultisols and Alfisols with silt loam to loamy sand textures. The Pliocene-age to

Louisiana, with some sugarcane in the southern portion. The Red River historically carried high silt

Longleaf pine is unique among pines in its ability been greatly modified with flood control and loads and was almost continuously turbid compared to other rivers of Ecoregion 35. With the to survive fire at such a young age. Photo Historical vegetation was dominated by longleaf pine-bluestem woodlands, but a variety of forest construction of the lock and dam system throughout its extent in Louisiana, silt load has lessened. types were present, including shortleaf pine-hardwood forests, calcareous forests, mixed hardwoodNatural vegetation and other biota, hydrology, and land uses are similar to parts of Ecoregion 73. Although mostly tree-covered, these irregular plains have a mosaic of cropland, pasture, woodland, and forest land cover. Natural vegetation in the Louisiana portion was predominantly upland longleaf

Southeastern Floodplains and Low Terraces comprise a riverine ecoregion of large rivers and backwaters with ponds, swamps, and oxbow lakes. Substrates of the low-relief region

Dairy is a major industry in Ecoregion 65f as the red-cockaded woodpecker and gopher tortoise. In Louisiana, subsurface materials of the are a mix of sands, silts, and clays, resulting in well to poorly drained Entisols and Inceptisols with although it has declined in recent years. The silt loam or fine sandy loam surfaces. River swamp forests of bald cypress and water tupelo and state's dairy industry is concentrated in oak-dominated bottomland hardwood forests provide important wildlife corridors and habitat. The and East Feliciana parishes, with about 400 dairy their life cycle. *Photo: LNHP* low terraces are mostly forested, although some small patches of pasture or cropland are found on farms. Photo: Paul Wallace, NRCS terrace areas that are better drained. In Louisiana, the region includes only the larger, wider

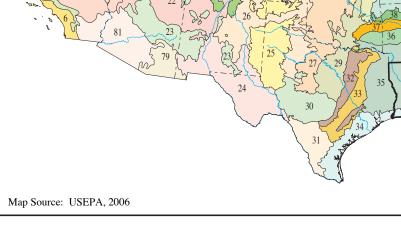
Mississippi south to New Orleans, Louisiana. Similar to the Northern Holocene Meander

poorly drained Inceptisols, Entisols, and Vertisols. The ecoregion contains minor species such as live oak, laurel oak, and Spanish moss that are generally not found in the more northerly regions. The bottomland forests have been cleared and the region has been extensively modified for The Southern Pleistocene Valley Trains ecoregion is a continuation of the northern valley train regions in Mississippi, Arkansas, and Tennessee. It is composed of scattered small overbank or slack-water deposits. These soils commonly have a high shrink-swell potential and are remnants of early-Wisconsin glacial outwash deposits, similar to those of Macon Ridge (73j). This common tree species. This region is generally higher than the adjacent Southern Backswamps

The Southern Backswamps ecoregion is generally warmer, has a longer frost free period, and has more precipitation than the Northern Backswamps (73d). Similar to 73d, soils are mostly poorly drained, clayey Vertisols, rich in organic matter. Wetlands are common and flooding The **Inland Swamps** ecoregion marks a transition, ranging from the fresh waters of the Southern Backswamps (73m) at the northern extent of the intratidal basins to the fresh, brackish, and saline waters of the deltaic marshes of Ecoregion 73o. It includes a large portion of the Atchafalaya Basin. Soils are mostly poorly or very poorly drained, clayey Entisols and Vertisols. Swamp forest communities are dominated by bald cypress and water tupelo, which are



volume of U.S. fisheries, with a value of about reduce storm and erosion damage, detain flood waters, recharge groundwater aquifers, and maintain water quality. Photo: Larry Handley, USGS



SCALE 1:1 000 000

Albers Equal Area Projection

Standard Parallels 30° N and 32° N

Level III Ecoregions of the Conterminous United States







Level III ecoregion

———— Level IV ecoregion

----- Parish boundary

----- State boundary

2 Puget Lowland

5 Sierra Nevada

4 Cascades

3 Willamette Valley

10 Columbia Plateau

11 Blue Mountains

12 Snake River Plain

15 Northern Rockies

16 Idaho Batholith

17 Middle Rockies

18 Wyoming Basin

21 Southern Rockies

25 High Plains

28 Flint Hills

20 Colorado Plateaus

24 Chihuahuan Deserts

27 Central Great Plains

26 Southwestern Tablelands

13 Central Basin and Range

14 Mojave Basin and Range

19 Wasatch and Uinta Mountains

22 Arizona/New Mexico Plateau

23 Arizona/New Mexico Mountains

6 Southern and Central California

8 Southern California Mountains

9 Eastern Cascades Slopes and Foothills

7 Central California Valley

Chaparral and Oak Woodlands



29 Cross Timbers

30 Edwards Plateau

31 Southern Texas Plains

35 South Central Plains

36 Ouachita Mountains

37 Arkansas Valley

38 Boston Mountains

39 Ozark Highlands

41 Canadian Rockies

44 Nebraska Sand Hills

46 Northern Glaciated Plains

47 Western Corn Belt Plains

49 Northern Minnesota Wetlands

51 North Central Hardwood Forests

53 Southeastern Wisconsin Till Plains

50 Northern Lakes and Forests

54 Central Corn Belt Plains

55 Eastern Corn Belt Plains

Indiana Drift Plains

56 Southern Michigan/Northern

48 Lake Agassiz Plain

52 Driftless Area

45 Piedmont

40 Central Irregular Plains

42 Northwestern Glaciated Plains

43 Northwestern Great Plains

32 Texas Blackland Prairies

33 East Central Texas Plains

34 Western Gulf Coastal Plain







